IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	**Mail Stop AF**
Olivier Larcher et al.	Group Art Unit: 1793
Application No.: 10/549,957	Examiner: Cam M. Nguyen
Filed: September 16, 2005	Confirmation No.: 1281
For: REDUCED MAXIMUM REDUCIBILITY TEMPERATURE ZIRCONIUM OXIDE AND CERIUM OXIDE BASED COMPOSITION, METHOD FOR THE PRODUCTION AND USE THEREOF AS A CATALYST (As Amended)	

DECLARATION PURSUANT TO 37 C.F.R. §1.132
OF EMMANUEL ROHART, PhD

Commissioner for Patents
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Sir:

1. I, Emmanuel Rohart, declare the following:

2. I, Emmanuel Rohart, am a citizen of France.

3. I received a PhD from the University of Poitiers (France) for my studies in the field of chemistry.

4. I have been employed by Rhodia from 1997 to the present. I am currently engaged in research and development in the field of catalysts, especially for automotive applications. I have also worked as an engineer in charge of catalyst applications, and as a project manager for the development of oxides for automotive catalysts.

5. I am familiar with the subject matter of the above-identified U.S. patent application, including the content of claim 22 currently contained therein:

> *22. A composition comprising zirconium oxide and cerium oxide, the composition comprising a zirconium oxide proportion of at least 50% by weight, a maximum reducibility temperature of at most 500 °C, a specific surface area of at least 40m^2/g after calcination for 6 hours at 500 °C, and comprising a predominant tetragonal phase.*

6. I have reviewed U.S. Patent No. 6,214,306 to Aubert et al. (hereafter "Aubert et al.") cited against the above claim 22 by the U.S. Patent Office.

7. I understand that it has been alleged by the U.S. Patent Office that the "*maximum reducibility temperature of at most 500 °C*" property contained in claim 22 is inherent and expected based on the composition disclosed by Aubert et al.

8. Based on the experiments described hereafter, I do not agree that the above-quoted property is inherent to the composition disclosed by Aubert et al.

9. Experiments were conducted under my direct supervision to formulate compositions that included at least zirconium and cerium oxides, with at least 50% by weight zirconium oxide, according to the teachings of Aubert et al.

10. A composition comprising, by weight, 70% ZrO_2, 20% CeO_2 and 10% La_2O_3 was prepared according to the process described in example 5 of U.S. Patent No. 6,214,306 and in using a mixture of cerium (IV) nitrate, of zirconyl nitrate and of lanthanum nitrate in respective proportions, by weight of oxide, of 20/70/10.

11. A composition comprising, by weight, 80% ZrO_2 and 20% CeO_2 was prepared according to the process described in example 1 of U.S. Patent No. 6,214,306 and in using a mixture of cerium (IV) nitrate and of zirconyl nitrate in respective proportions, by weight of oxide, of 20/80.

12. A composition comprising, by weight, 60% ZrO_2 and 40% CeO_2 was prepared according to the process described in example 3 of U.S. Patent No. 6,214,306 and in using a mixture of cerium (IV) nitrate and of zirconyl nitrate in respective proportions, by weight of oxide, of 40/60.

13. The maximum reducibility temperature of the above compositions was then measured according to the following procedure.

A specimen of 200 mg of the compositions that had been calcined beforehand for 10 hours at 1000°C in air was put into a silica reactor. The gas comprised 10% hydrogen by volume in argon with a flow rate of 25 ml/min. The temperature rise takes place from room temperature up to 900°C at a rate of 20°C/min. The signal is detected with a 70 mA thermal conductivity detector. Hydrogen capture is calculated from the area missing from the hydrogen signal from the baseline at room temperature to the baseline at 900°C. The maximum reducibility temperature, or the temperature at which hydrogen capture is at a maximum, is measured using a thermocouple placed in the core of the specimen.

14. The maximum reducibility temperature of the above compositions measured as set forth above was found to be as follows:

Mixed Oxide Compositions and Weight Percentages	**Maximum Reducibility Temperature (°C)**
$ZrO_2/CeO_2/La_2O_3$ - 70%/20%/10%	545°C
ZrO_2/CeO_2 - 80%/20%	552°C
ZrO_2/CeO_2 - 60%/40%	573°C

15. It is clear from the above results that compositions formed according to the teachings of Aubert et al. do not necessarily possess "*maximum reducibility temperature of at most 500 ℃*" as set forth in claim 22.

16. I further declare that all statements made herein of my own knowledge are true and that all statements on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Dec 10th /2008 By: _____
Emannuel Rohart